

(No Model.)

2 Sheets—Sheet 1.

B. DUNHAM.
LOCOMOTIVE BRAKE.

No. 346,271.

Patented July 27, 1886.

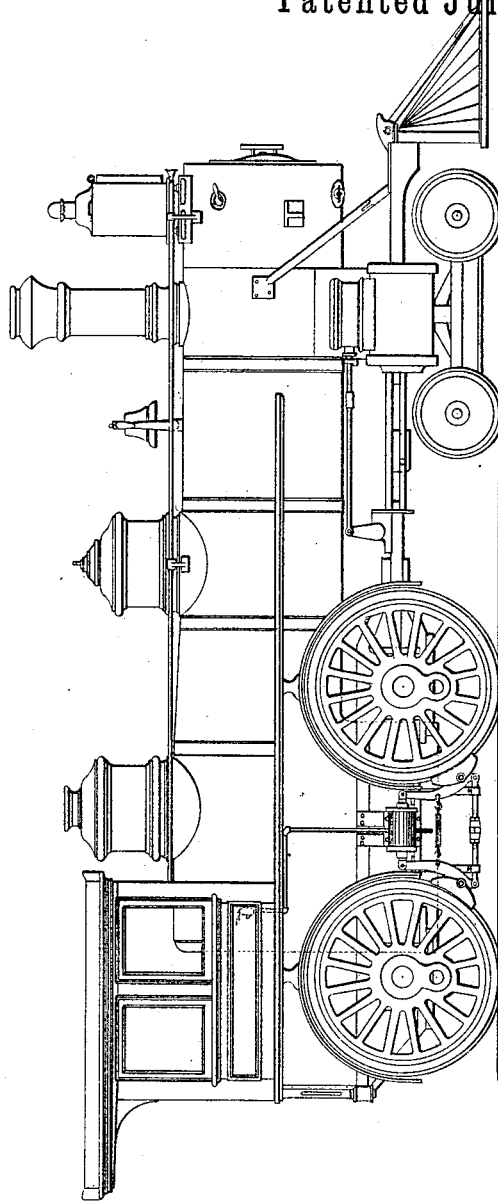


Fig. 1.

WITNESSES:

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Geo W Thompson

INVENTOR

B. Dunham

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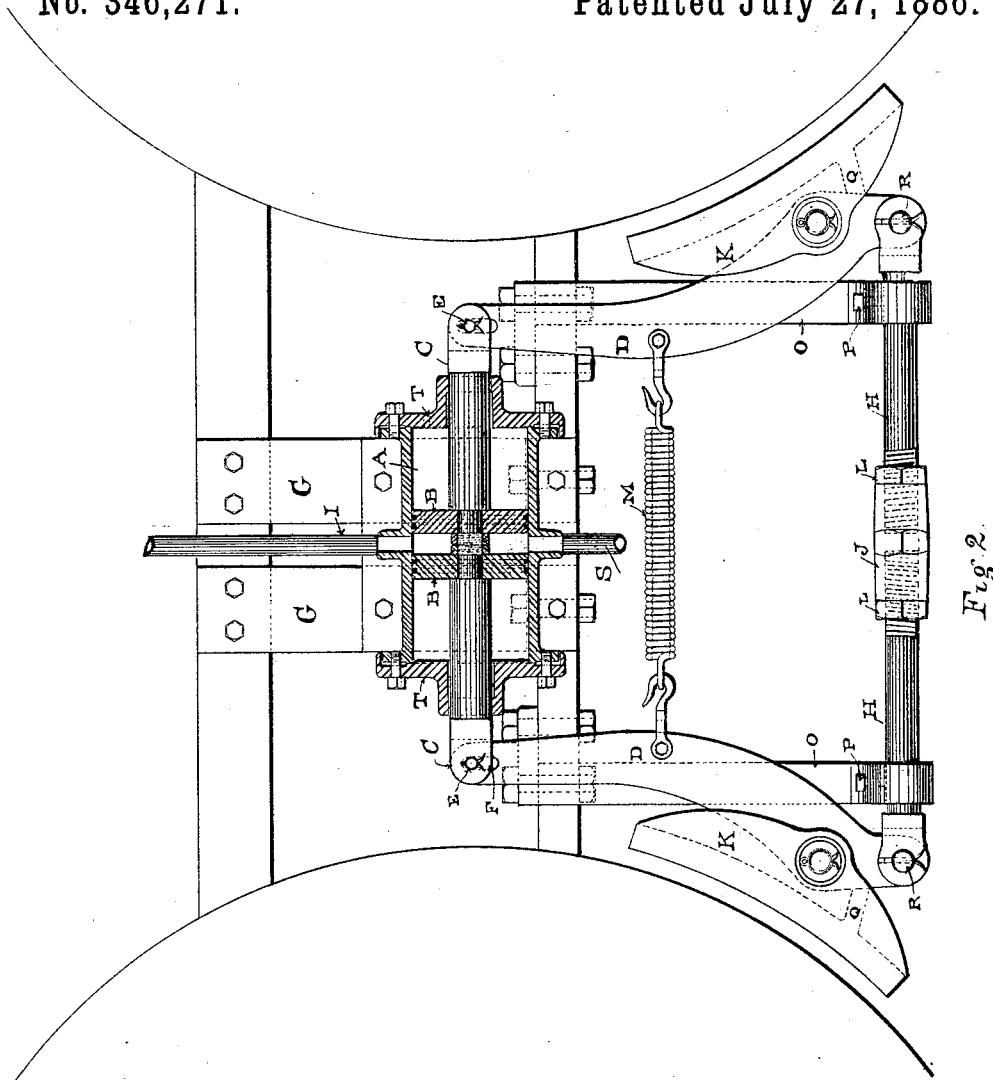


Fig. 2.

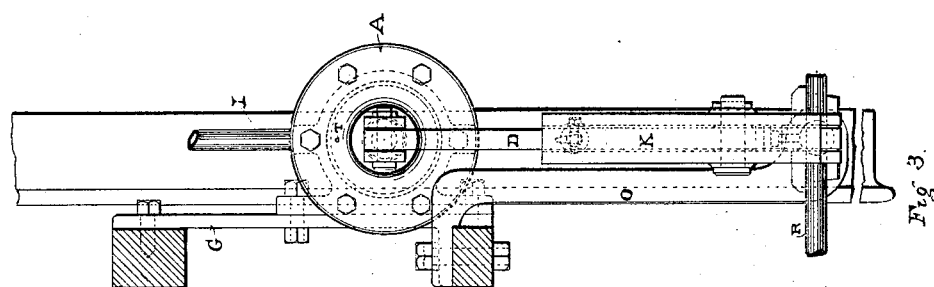


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

BRADFORD DUNHAM, OF BALTIMORE, MARYLAND.

LOCOMOTIVE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 346,271, dated July 27, 1836.

Application filed April 19, 1836. Serial No. 199,432. (No model.)

To all whom it may concern:

Be it known that I, BRADFORD DUNHAM, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Locomotive Driver-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of locomotive driver-brakes which are provided with a cylinder having two pistons moving in opposite directions from the steam-supply pipe, two brake-levers connected by one end to the piston-rods and by the other to an adjustable fulcrum-rod, and brake-shoes pivoted to the brake-levers and forced against the wheels by the action of the steam upon the pistons, and drawn away from the wheel by a spring which acts when the steam-pressure is withdrawn.

The object of my invention is to improve upon this construction; and to that end the nature of it consists in constructions and combinations, all as will hereinafter be described in the specification and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of a locomotive, showing my device in place; Fig. 2, a side elevation on a scale larger than that shown in Fig. 1; and Fig. 3, an end elevation, the back wheel being removed to show manner of hanging brakes to engine-frame.

A represents the cylinder, secured to the brace G of the locomotive-frame by bolts *g*. It is provided with a steam-supply pipe, I, and drain-pipe S, located midway of the cylinder and at points preferably diametrically opposite each other. In the cylinder are two pistons, B, separated from each other by the ends of the piston-rods C, so that steam will pass between and force them in opposite direction. To prevent the air or steam that may have leaked into the spaces between the pistons and cylinder-heads from forming an air cushion, the openings T are provided, which openings permit the air to escape as the pistons move toward the heads.

The piston-rods C, which project through each head of the cylinder, are provided with

jaws *c*, between which the upper ends of the levers D project, and a bolt, *c'*, which passes through the slot F to permit the piston-rods to travel in a straight line.

The brake-levers are fulcrumed at their lower ends to the fulcrum-rods H, which are supported by the hangers O, attached to the frame by bolts *o*, and provided at the lower end with a sleeve, *o'*, for the fulcrum-rods, which are prevented from turning by set-screws P. The fulcrum-rods are provided one with a right-hand and the other with a left-hand screw, and both connected with a left and right hand sleeve-nut, J, for adjusting the rods to and from the wheels, and with jam-nuts L, for clamping the sleeve-nut in place after the adjustment has been made.

R R are tie-rods for connecting the fulcrum-rods of opposite sides, and serve as a fulcrum or journal for the brake-lever.

Pivoted upon the bend of the curved levers D are the brake-shoes K, each having rearwardly-projecting flanges for the pivot-bolt *k*, and the lug Q, which rests against the lever and holds the brake-shoes in their proper position in relation to the wheels.

Upon each brake-lever is a pivoted hook, D', to which is connected the spring M, which releases the brake shoes from the wheels when the steam-pressure is removed from the cylinders.

The operation of the device is as follows: Steam delivered through pipe I passes into the cylinder between the pistons and forces them outwardly. The piston-rods force the upper ends of the brake-levers toward the wheels. The levers carry the brake-shoes against the wheels, where they are held as long as the steam acts upon the piston. As soon as the pressure upon the pistons is removed the spring M draws the lever and brake-shoes back to the position shown in Fig. 2.

I am aware that release-springs have been located in the cylinder and the ends of the brake-levers, and these forms I do not claim. My device differs from them, in that the springs are located between the piston-rods and the brake-shoes and attached to the long arms of the brake-levers.

What I claim as new is—

1. In a locomotive driver-brake, the combi-

5 nation of a cylinder having two pistons and piston-rods, the brake-levers carrying the brake-shoes, and the release-spring attached to and connecting the long arms of the brake-levers at a point between the piston-rods and the brake-shoes, substantially as described.

10 2. In a locomotive driver-brake, the combination of a cylinder having two pistons and piston-rods, the brake-levers having slotted connections with the piston-rods and carrying the brake-shoes, and the release-spring attached to and connecting the long arms of the brake-levers at a point between the piston-rods and the brake-shoes, substantially as described.

15 3. In a locomotive driver-brake, the combination of a cylinder having two pistons and piston-rods, the brake-levers carrying the brake-shoes, the adjustable fulcrum-bar, and the release-spring attached to and connecting the long arms of the brake-levers at a point between the piston-rods and the brake-shoes, substantially as described.

20 4. In a locomotive driver-brake, the combination of hangers rigidly attached to the loco-

25 motive-frames, and the fulcrum-rods secured to the lower ends of said hanger, substantially as described.

5. In a locomotive driver-brake, the combination of the hangers rigidly secured to the locomotive-frame and having a sleeve at their lower end, and the fulcrum-rods passing through said sleeves and secured in place by a set-screw, substantially as described.

6. In a locomotive driver-brake, the combination of the brake-levers and the brake-shoes having the lugs Q, which rest against the brake-levers, substantially as described.

7. In a locomotive driver-brake, the combination of the brake-levers, the brake-shoes having lugs Q, and the release-springs, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

BRADFORD DUNHAM.

Witnesses:

GEO. W. HUMPHREYS,
W. H. HARRISON.